

Amendments to the Claims

This listing of claims, if entered, will replace all prior versions and listings of claims in the above-identified application.

Listing of Claims

1. **(Currently Amended)** A method comprising:
 - providing a coordinator virtual device corresponding to a portion of a physical data storage device;
 - detecting when a computer system cluster, including a plurality of nodes, is partitioned;
 - a first node of the plurality of nodes attempting engaging in a race with a second node of the plurality of nodes to gain control of the coordinator virtual device; and
 - removing the first node of the plurality of nodes from the computer system cluster in response to the attempting being unsuccessful first node failing to gain control of the coordinator virtual device by losing the race, wherein
 - the removing comprises disabling the first node from accessing the portion of the physical data storage device.
2. **(Previously Presented)** The method of claim 1 wherein the providing the coordinator virtual device corresponding to the portion of the physical data storage device further comprises:
 - selecting the portion of the physical data storage device;
 - associating a physical description of the portion of the physical data storage device with a coordinator virtual device identifier; and
 - allowing at least one of the plurality of nodes of the computer cluster to access the portion of the physical data storage device via the coordinator virtual device identifier.

3. (Previously Presented) The method of claim 1 wherein the providing the coordinator virtual device corresponding to the portion of the physical data storage device is performed by at least one virtual device configuration server.

4. (Original) The method of claim 3 wherein the at least one virtual device configuration server is separate from the plurality of nodes of the computer cluster and wherein at least one of the plurality of nodes of the computer cluster further comprises a virtual device configuration client.

5. (Previously Presented) The method of claim 1 further comprising:
reading cluster membership information from the coordinator virtual device corresponding to the portion of the physical data storage device.

6. (Previously Presented) The method of claim 1 wherein the detecting when the computer system cluster, including the plurality of nodes, is partitioned further comprises:

reading, as performed by one of the plurality of nodes, cluster membership information from the coordinator virtual device corresponding to the portion of the physical data storage device; and
determining whether the cluster membership information indicates that the one of the plurality of nodes is a current member of the computer system cluster.

7. (Previously Presented) The method of claim 1 further comprising:
writing cluster membership information to the coordinator virtual device corresponding to the portion of the physical data storage device.

8. (Previously Presented) The method of claim 1 wherein the coordinator virtual device corresponding to the portion of the physical data storage device further comprises cluster membership information.

9. (Previously Presented) The method of claim 1 wherein the coordinator virtual device corresponding to the portion of the physical data storage device is a coordinator volume.

10. (Previously Presented) The method of claim 1 wherein the detecting when a computer system cluster is partitioned further comprises:

monitoring a network coupled to each of the plurality of nodes for a heartbeat signal; and

determining when the heartbeat signal is not present for a specified period of time.

11. (Cancelled)

12. (Previously Presented) The method of claim 1 encoded in a computer readable storage medium as instructions executable on a processor, the computer readable storage medium being one of an electronic storage medium, a magnetic storage medium, and an optical storage medium.

13. (Previously Presented) The method of claim 1 further comprising:

allowing at least one of the plurality of nodes of the computer cluster to exclusively access the portion of the physical data storage device.

14. (Cancelled)

15. (Currently Amended) A system comprising:

a first data storage device;

a virtual device configuration server coupled to the first storage device and including a first memory and a first processor configured to provide a coordinator virtual device corresponding to a portion of the first data storage device;

a plurality of virtual device configuration clients configured as a computer system cluster, a first of the plurality of virtual device configuration clients including a second memory and a second processor configured to: detect when the computer system cluster is partitioned[[;]] ,
attempt engage in a race with a second of the plurality of virtual device configuration clients to gain control of the coordinator

virtual device corresponding to the portion of the first data storage device[[;]] , and

disable the first node of the plurality of virtual device configuration clients from accessing the portion of the first data storage device by removing the first of the plurality of virtual device configuration clients from the computer system cluster in response to the attempt to first of the plurality of virtual device configuration clients failing to gain control of the coordinator virtual device being unsuccessful by losing the race.

16. (Cancelled)

17. (Original) The system of claim 15 wherein the first data storage device is at least one of a disk drive, a JBOD, a disk array, and an integrated circuit.

18. (Original) The system of claim 15 wherein the first data storage device is coupled to the virtual device configuration server via a network.

19. (Original) The system of claim 15 wherein the virtual device configuration server is a volume server, wherein the coordinator virtual device is a coordinator volume, and the plurality of virtual device configuration clients is a plurality of volume clients.

20. (Previously Presented) The system of claim 15 wherein the first of the plurality of virtual device configuration clients is further configured to read cluster membership information from the coordinator virtual device corresponding to the portion of the first data storage device.

21. (Previously Presented) The system of claim 20 wherein the first of the plurality of virtual device configuration clients is further configured to determine whether the cluster membership information indicates that the first of the plurality of virtual device configuration clients is a current member of the computer system cluster.

22. (Previously Presented) The system of claim 15 wherein the first of the plurality of virtual device configuration clients is further configured to write cluster membership information to the coordinator virtual device corresponding to the portion of the first data storage device.

23. (Original) The system of claim 15 wherein the coordinator virtual device corresponding to at least a portion of the first data storage device further comprises cluster membership information.

24. (Cancelled)

25. (Original) The system of claim 15 wherein the first memory and the virtual device configuration server belong to at least one of a host computer system, a cluster node, a storage appliance, a network appliance, and a storage area network (SAN) switch.

26. (Cancelled)

27. (Cancelled)

28. (Currently Amended) An apparatus comprising:

a means for providing a coordinator virtual device corresponding to portion of a physical data storage device;

a means for detecting when a computer system cluster, including a plurality of nodes, is partitioned;

a means for attempting engaging a first node of the plurality of nodes in a race with a second node of the plurality of nodes to gain control of the coordinator virtual device; and

a means for disabling the first node from accessing the portion of the first data storage device by removing a first node of the plurality of nodes from the computer system cluster in response to the attempting being unsuccessful first node failing to gain control of the coordinator virtual device by losing the race.

29. (Previously Presented) The apparatus of claim 28 further comprising:
a means for reading cluster membership information from the coordinator virtual
device corresponding to the portion of the physical data storage device.

30. (Previously Presented) The apparatus of claim 28 further comprising:
a means for writing cluster membership information to the coordinator virtual
device corresponding to the portion of the physical data storage device.

31. (Previously Presented) The apparatus of claim 28 further comprising:
a means for determining whether cluster membership information stored in the
coordinator virtual device corresponding to the portion of the physical data
storage device indicates that the first node of the plurality of nodes is a current
member of the computer system cluster.

32. (Previously Presented) A method comprising:
a first node of a computer system cluster engaging in a race to gain control of a
coordinator virtual device, wherein
the engaging is performed in response to a partitioning of the computer
system cluster;
removing the first node from the computer system cluster in response to the first
node failing to gain control of the coordinator virtual device by loosing the
race.